Cell Stem Cell
Editorial

Keeping an Eye on Our Moral Compass

This editorial covers two topics, both of which I have been planning to write about for a while. Over the past few weeks, some of the issues involved have been thrown into sharp focus by the tragic and untimely death of Yoshiki Sasai. I am sure I am not alone in still being deeply shocked and saddened by this unexpected turn of events. The vast majority of us will never know about, let alone understand, the combination of factors and circumstances that led Yoshiki to make such a decision. We can nevertheless all take a collective moment to honor him for the major contributions he made and to reflect on what we can learn from the overall situation about how we conduct the research enterprise.

The first issue, which has probably already sprung to mind for many of you after that opening, is research misconduct. The whole topic of the STAP papers, the concerns about them, and their eventual retraction has been covered in great detail in many outlets already, and I will not rehash it here. There is undoubtedly also a lot more information underlying the institutional and journal examination of the issues involved than is evident from the public discussions. From my experience as an editor, I know that investigation of concerns about papers can be complicated, and expectations of rapid resolution are frequently unrealistic. In some cases, where there is clear evidence that data have been manipulated, retraction is really the only appropriate option. Retraction can also be called for if the errors are not actively intentional and could have been avoided by greater care in figure assembly but nevertheless are sufficiently extensive to mean that they undermine confidence in the conclusions of the paper. In many cases, however, errors resulting from mistakes in figure preparation are relatively minor and, while regrettable, do not necessitate retraction of the paper involved. There is an example of this last type of situation in the Erratum we are publishing this month.

Concerns about high-profile papers inevitably raise questions about what journals can or should do to avoid allowing problematic data to be published in the first place. At the outset, as journal editors we approach all of the research that we read from an initial position of trust, because the vast majority of researchers working in this and any field do so honestly and report their results accurately. Nevertheless, problems can and sometimes do arise. Many are picked up by reviewers and addressed as part of the peer review process. Others can be identified by figure screening programs that many publishers, including Cell Press, are working on or already have in place. We and other publishers are also looking at ways to increase the accuracy of reporting to assist with reproducibility and the quality of underlying experimental design. These approaches are useful, but they have limitations, and they are not sufficiently sophisticated to detect all of the different types of issues that can occur. The community has other checks and balances in place that come into play after publication, and in the digital age these have expanded from personal discussions and conference sessions to blogs, comments, and tweets in the online environment. Prominent studies in particular are often the subject of detailed examination and criticism. In the aftermath of Yoshiki's death, there have been many comments about the tone of the discussions among scientists and in the general media regarding the STAP papers and other cases. There are some powerful underlying messages about civility toward each other and about being understanding of the fact that even the most rigorous of scientists can make mistakes, either personally or via their colleagues. Journal editors are not infallible either. If errors are corrected quickly and appropriately, we should all be able to move on. I hope that in the future we will learn as a community to handle such situations more effectively by combining the necessary adherence to high scientific standards, and corrective action when they are not met, with compassion for the people involved.

The second topic that I would like to address is clinical translation. It goes without saying that many of us working in or supporting the stem cell field are excited about clinical translation as a major long-term, and in some cases even quite proximal-term, goal. There are many examples in the literature of strong underlying research leading toward new translational outcomes that involve either cell-based therapies or new treatment approaches discovered using stem cells. Yoshiki Sasai himself had supported one such effort by working with colleagues at the RIKEN CDB on underlying research that set the stage for clinical testing of a treatment for macular degeneration using iPSC-derived retinal sheets. This overall trend was very apparent at the ISSCR annual meeting earlier this year, where one of the most exciting sessions focused on clinical translation. At that meeting, I was also very happy to learn that the ISSCR are working to update the guidelines and resources that they make available for patients. As Tim Caulfield and colleagues outline in their Forum article in this issue, such efforts are sorely needed. Despite all of these positive developments, there are still companies and organizations that are promoting stem-cell-based therapies in ways that seem to many in the field to be premature and even dangerous. There are also still too many stories about patients being asked to pay large sums of money for treatments that have minimal scientific support. As a journal, our goal is to promote rigorous, well-controlled underlying research and its progress toward clinical translation, with both safety and efficacy as key considerations in that regard. This approach reflects our perspective on what we see as being the most effective path forward for the community as well. Neither the field nor the patients will benefit if enthusiasm about commercial application of stem cell research runs ahead of scientific rigor. I hope that through positive examples and communication initiatives we will all be able to address the troublesome issues in this area more effectively as well and again with compassion and understanding alongside a strong focus on high-quality science.

I would like to end this piece with some memories of Yoshiki Sasai. I personally did not know Yoshiki particularly well, but had of course interacted with him scientifically in a variety of contexts. He supported *Cell Stem Cell* through being a member of the editorial board and through submitting to and reviewing for the journal. I will always remember his warm and infectious

enthusiasm for his own work and that of others, his excitement when sharing his vision for 3D organogenesis, and his optimism about the clinical translation partnership between the RIKEN CDB and the Institute for Biomedical Research and Innovation. Many of these traits are also reflected in Arnold Kriegstein's thoughtful tribute to him, which appears in this issue. Yoshiki was a fantastic contributor to the stem cell field, and it is a significant loss for all of us that he is no longer here.

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